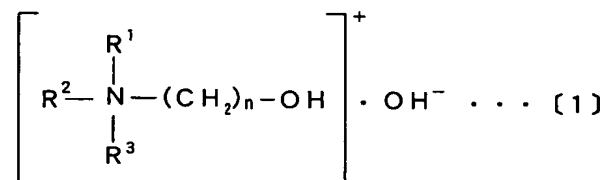


## CLAIMS

1. A metal corrosion inhibitor for preventing corrosion of metal in a steam generating unit or petroleum refining or petrochemical process unit, comprising a quaternary ammonium compound described by general formula [1] below:



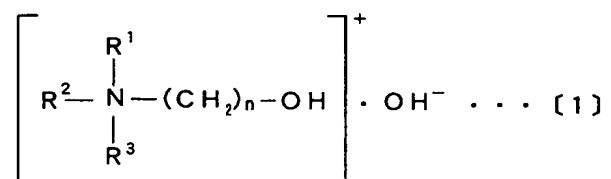
(wherein  $R^1$ ,  $R^2$  and  $R^3$  are the same or different hydrocarbon radicals with 1 to 4 carbon atoms, and  $n$  is an integer between 1 and 10.)

2. The metal corrosion inhibitor according to Claim 1, wherein  $R^1$ ,  $R^2$  and  $R^3$  in the general formula [1] are the same or different hydrocarbon radicals with 1-3 carbon atoms, and  $n$  is an integer between 1 and 4.

3. The metal corrosion inhibitor according to Claim 1, wherein the quaternary ammonium compound described by the general formula [1] is ( $\beta$ -hydroxyethyl)trimethylammonium hydroxide.

4. The metal corrosion inhibitor according to any of Claims 1 to 3, comprising the quaternary ammonium compound described by the general formula [1] in an amount of 1% by mass or more.

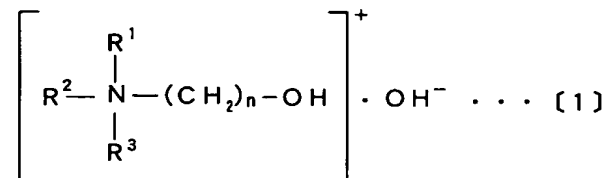
5. A method for preventing corrosion of metal in a steam generating unit, wherein a quaternary ammonium compound described by general formula [1] below:



(wherein R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are the same or different hydrocarbon radicals with 1 to 4 carbon atoms, and n is an integer between 1 and 10) is contained in water which may contact the inside of the steam generating unit.

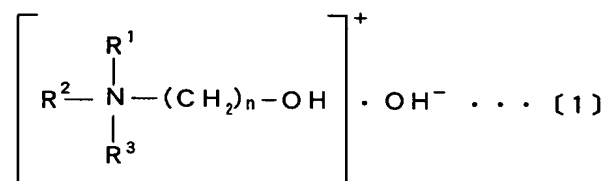
6. The method for preventing corrosion of metal in a steam generating unit according to Claim 5, wherein the quaternary ammonium compound described by the general formula [1] is added in the range of 0.1-50 mg/L to feed water which may contact the inside of the steam generating unit.

7. A method for preventing corrosion of metal in a petroleum refining or petrochemical process unit, wherein a quaternary ammonium compound described by general formula [1] below:



(wherein  $R^1$ ,  $R^2$  and  $R^3$  are the same or different hydrocarbon radicals with 1 to 4 carbon atoms, and  $n$  is an integer between 1 and 10) is contained in fluid which may contact the inside of the petroleum refining or petrochemical process unit.

8. A method for preventing corrosion of metal in an atmospheric distillation column for petroleum refining process, wherein a quaternary ammonium compound described by general formula [1] below:



(in which  $R^1$ ,  $R^2$  and  $R^3$  are the same or different hydrocarbon radicals with 1 to 4 carbon atoms, and  $n$  is an integer between 1 and 10) is contained in fluid which may contact the inside of the atmospheric distillation column for petroleum refining process such that a pH value thereof at the top line of the atmospheric distillation column is 5.5-6.5.

9. A hydrogen chloride formation inhibitor for a crude oil atmospheric distillation unit, comprising ( $\beta$ -hydroxyethyl)trimethylammonium hydroxide.

10. The hydrogen chloride formation inhibitor for a crude oil atmospheric distillation unit according to Claim 9, comprising ( $\beta$ -hydroxyethyl)trimethylammonium hydroxide in an amount of 5% by mass or more.

11. A method for inhibiting formation of hydrogen chloride in a crude oil atmospheric distillation unit, wherein ( $\beta$ -hydroxyethyl)trimethylammonium hydroxide is contained in the desalted crude oil in between the crude oil desaltor and the main distillation column in the crude oil atmospheric distillation unit.

12. The method for inhibiting formation of hydrogen chloride in a crude oil atmospheric distillation unit according to Claim 11, wherein the ( $\beta$ -hydroxyethyl)trimethylammonium hydroxide content is controlled to 0.1-5 times by molar equivalent the salts content in the desalted crude oil.

13. The method for inhibiting formation of hydrogen chloride in a crude oil atmospheric distillation unit according to Claim 11, wherein the chloride ion concentration or pH of the condensed water in the main distillation unit is measured, and the ( $\beta$ -hydroxyethyl)trimethylammonium hydroxide content is controlled based on the measurement results.

14. The method for inhibiting formation of hydrogen chloride in a crude oil atmospheric distillation unit according to Claims 11, wherein the ( $\beta$ -hydroxyethyl)trimethylammonium hydroxide content is controlled such that the chloride ion concentration (sodium chloride conversion) of the overhead receiver water is 0-30 mg/L or the pH of the overhead receiver water is 5.5-7.0.